medical treatment should be studied carefully from a surgical standpoint: that the bedside examination be given more weight than the laboratory: and that a diagnosis of gastric ulcer can be made almost certain by careful investigation.

A. S. D.

SURGICAL ANEMIA AND RESUSCITATION.

(By Geo. W. Crile, M.D., in *American Journal of the Medical Sciences,* April, 1909.)

In the vegetable and animal kingdoms functional activity and growth require an almost constant supply of food; otherwise, impairment or loss of function must follow. Neither individuals as a whole nor the various organs and histological elements respond equally to a diminished or a complete loss of food. Death, therefore, falls unevenly upon various tissues and organs. Definite death signifies final extinction of the vital spark; relative death means suspended animation, and is susceptible of reanimation by supplying the required nourishment, the condition being due to loss of its complex food supply. This impoverishment is designated anemia.

Surgical anemia may be due to hemorrhage, shock, or segregation of the blood, or to mechanical obstruction. The results, whether partial or complete, local or general, depend on the resistance of tissues involved. An organ may cease to functionate while its cells still survive, and some functions of cells remain while others are lost. Then, how long may anemia of various organs exist and be resuscitated? And how can this be best accomplished? The skin may be removed and grow again after weeks. Rigor mortis of voluntary muscles begins after about twelve hours. Bones endure a longer period, and nerves degenerate more quickly than muscles. The kidney may survive a total anemia for more than an hour, and the intestines for six or seven hours. The heart has beat rhythmically after preservation for forty-four hours. Blood vessels endure weeks, while parts of the central nervous system vary greatly.

Resuscitation refers to the body, an organ, or a tissue. In local anemia from mechanical pressure or injury ordinary measures are used. In occlusion of supplying vessels anastomosis and heteroplastic transplantation of blood vessels are employed. In anemia from shock or hemorrhage direct transfusion of blood are recommended. Transplantation of organs, especially viscera, is discussed, also the dire and swift results of complete anemia of the central nervous system. Partial and local anemia of the brain and cord are often amenable to treatment. Simultaneous closure of both common carotids has been done by Crile, but was accompanied by unmistakable signs of danger. Atheroma increases this danger.

Where sitting posture is necessary after operation, the consequent cerebral anemia may be overcome by the pneumatic rubber suit. Increased intracranial tension and its causes need physiological interpretation. The rigid skull, though a protector from external violence, increases the consequent anemia. Hence, nature's curative effort is the displacement of cerebro-spinal fluid and an increased general blood pressure. The symptoms of compression are analyzed according to the degree of pressure. Surgical approach must be physiological; the circulation is not to be depressed, but should be supported. Decompression must be done with the least possible hemorrhage and shock.

Discussing resuscitation of the body as a whole, experiments on the excised heart show that resuscitation of this organ depends on pressure in the coronary arteries. This is obtained by plain infusion combined with cardiac massage. Adrenalin is an adjunct only if injected into the arterial system near the heart so that the effect is transmitted directly to the coronaries. If injected into the veins and compelled to pass through the right heart and lungs before reaching the coronaries an excess of the solution and blood collects in the right heart and defeats our purpose.

In general, with resuscitation the following sequence of return of the various functions and reflexes is noted: Vasomotor action, respiration, corneal and patellar reflexes, winking, cutaneous reflexes, contraction of pupil and light reflex. To determine the limits of recovery after total anemia of the central nervous system, twenty dogs were killed by chloroform and resuscitated after varying lengths of time from three to fourteen minutes. None recovered after eight and a half minutes.

Technic in Human Resuscitation.—The patient recumbent, make rapid rhythmic pressure upon the chest, one hand on each side of sternum, producing artificial respiration and moderate artificial circulation. Then insert a cannula toward the heart into an artery. Normal saline is infused by means of funnel and rubber tubing. When flow begins pierce tubing near cannula with hypodermic needle and inject 15 to 30 minims of 1 to 1,000 adrenalin chlorid. Repeat in one minute, if necessary. Synchronously with this injection the rhythmic pressure on thorax is brought to a maximum. This distributes the adrenalin, producing a rise of arterial, hence coronary pressure, thus starting cardiac contractions. This result obtained, the cannula is withdrawn. Bandaging the extremities and abdomen tightly over cotton is useful. Two points are here noted: (1) The human heart seems to respond more readily than that of a dog. (2) The staff must be drilled to begin technic within two minutes on account of the rapid degeneration of the central nervous system. This method is the most effective known. R. W. B.

Extracts from the European Medical Journals, translated for the Southern Medical Journal by A. E. Thayer, M. D., State Bacteriologist for Florida.

Within the last six months a number of interesting observations on the circulatory system have appeared. Kraus (1) passes the various methods in review which are used for determining the blood pressure in the arteries, gives for the average maximum pressure in the brachial (observed on twenty healthy soldiers) 125-130 mm. Hg. and sums up in the following table the most important clinical conditions accompanied with increased and decreased pressures:

Increased (*a*) permanent.
- Indurative nephritis.
- Arteriosclerosis, even in the early stages.
- Toxic cardiac dyspnea with arterial hypertension.
- Hyperglobulism.
- Basedow's disease (inconstant).
- High pressure stasis.

(*b*) Transitory.
- With muscular exertion.
- Pain.
- Crises of tabes.
- Neurasthenia with intestinal symptoms.
- Arteriosclerosis.
- Angina pectoris.
- Toxic and drug effects, including alcohol, excitants, CO_2 baths.

Decreased (*a*) permanent.
- Heart disease and insufficiency.
- Addison's disease.

(*b*) Transitory.
- Collapse.
- Neurasthenia, with vaso-motor symptoms.

He brings out the fact that the work of the heart stands in relation (not absolutely proportional) to the volume of oxygen used in the entire organism, and is probably controlled by the nervous mechanism.

Plesch (2) calculates by special apparatus the following three factors: 1. The amount of oxygen required in one minute by the body. 2. The per cent. of oxygen in the blood of the right side of the heart before it goes to the lungs for a new supply of oxygen, and 3 the per cent. of oxygen in the arterialized blood, or the change in oxygen content which the venous blood has undergone in passing through the lungs; and from these three factors calculates the minute volume of blood forwarded by the heart as well as the volume delivered to the aorta with each beat. He believes that in this way we obtain accurate conceptions of the physiological and pathological dynamics of the circulation, the work accomplished by the heart, and the cardiac power of accommodation.

Dietlen (3) points out that by the X-ray (orthodiagraphic) the form of the heart in emphysema, instead of the usual more or less complete oval projection gives, in the absence of hyperthrophy and dilatation, a heart which lies more deeply and is more vertical and median than normal, hanging on a long and narrow vascular pedicle; normally an approach to this appearance occurs in deep inspiration, and the same is found with stenosis of the trachea and larynx. When hyperthrophy occurs with emphysema the heart shadow is more plump and four cornered, and this is observed also in bronchial asthma. In the asthmatic attack there are marked variations in the apparent size of the heart and these are the opposite of what is observed in health, for there is a decrease during expiration and an increase during inspiration. He believes that this is explained as the result of decreased diastolic filling of the heart during dyspneic expiration on account of excessive intrapulmonary blood pressure. The same observer (4) claims that recognizable acute dilatations of the heart are comparatively frequent in diphtheria, scarlet fever, articular rheumatism, and less often in typhoid. On the other hand, in pneumonia this orthodiagraphic appearance is uncommon. But as Herz (5) points out, there may be an increase in the projection field on the surface of the body without necessarily an actual increase of the mass and volume of the heart. A common cause of this deceptive appearance is a more transverse situation of the heart because of collections of gas or fluid in the abdomen, or upward pressure from a tumor. This leads to a bending of the heart on the ascending aorta, the formation of a vortex in its cavity and a false murmer which may be mistaken as evidence of a valve lesion. Other causes of the abnormal transverse position are increased in the length of the first part of the aorta as in arteriosclerosis, muscular relaxation in neurasthenia, and malformations of the thorax from rhachitis. In chlorosis, Barie (6) found among eighteen young women between 17 and 24 years of age, decrease of the heart in nine, increase in three, and physiological conditions in six. He finds that dilatation in this disease may effect either side of the heart; or both, as the result of atony of the myocardium and gastric neuropathic dyspepsia. The dilitation is usually transitory and seldom reaches a high degree.

Moussous (7) has studied asystoly in infants and considers that the most important cause is pericarditis, either the latent form or with adhesions, producing pressure upon the auricles and frequently extending to involve the muscular tissue of the heart. Myocarditis is very uncommon by itself, but is usually accompanied by inflammatory changes in the external and internal investing coats. Rheumatic pericarditis is less important as a factor. Asystoly in the infant is less apt to result in edema, thoracic and abdominal stasis, and albuminuria, than in adult patients because of the better condition of the vascular walls, and arythmia may be absent while the myocardium is healthy, Congenital defects of the heart seldom cause asystoly unless a secondary extra-uterine disease follows, and these patients die, as a rule, from paroxysmal cyanosis with hemorrhages from the nose and gums, or from intercurrent disease.

In the early diagnosis of diabetes Loewi recommended the installation of a solution of adrenalin in the eye of the suspected patient, which produces dilatation of the pupil with diabetes but not in healthy subjects or in other disease. This reaction has been studied by Bittorf (8) in Strumpell's clinic on eight diabetic patients of different ages and with varying severity of the disease, and in none of them was there any trace of dilation. In a second series of cases, including Basedow's disease, apical tuberculosis, tabes, syringomyelia and peritonitis the reaction was negative. In two cases of diabetic coma, which soon terminated in death, he obtained a reaction, and also in a case with left-sided facial paralysis. These three cases presented dryness of the corneæ with minute epithelial defects, and consequently the cornea was pervious to the adrenalin as it is not normally, which probably explains the resulting dilatation. But as a diagnostic test of the disease he does not support Loewi's claims.

Decreased ocular tension as a point in the differential diagnosis of diabetes, as described by Heine and Krause, is again insisted on by Rogge, who publishes (9) a striking case, but no explanation for this loss of tone in the eyeball has yet been offered.

The importance of the "carrier" for the spread of typhoid fever has long been recognized, the apparently healthy person who may or may not give a history of the disease and yet has the typhoid bacilli in the gall bladder or urine; perhaps of equal importance for epidemic meningitis are the persons who for months have the specific cocci in the mucus of the nose and pharynx.

Hubner and Kutscher (10) examined fifty-four soldiers with catarrhal affections of the upper air passages and found the meningococcus in three. A further examination of 400 soldiers discovered 8 positive, or 2.8 per cent. of the total number, none of whom had any symptoms of the disease. The 8 mentioned had been drilled where they came in contact with a regiment in which cases had been observed. Vagades (11) found 33 carriers among 1,703 persons examined. Burns and Hohn (12) report 401, or nearly 22.5 per cent. of carriers among 1,786 persons examined, and lay stress upon the importance of immediate bacteriological study of the specimen of nasal or pharyngeal mucus, for in a series where there was some delay in delivering the material the per cent. of positive cases was much lower. At the height of the epidemic they found among 330 persons who came into relations with patients ill of the disease, nearly 50 per cent. with meningococci in the nose and pharynx, but toward the end of the epidemic there were but 10 per cent. of carriers. They estimate that in any given outbreak of the disease there are at least ten times more people with the specific germ in the upper air passages than the actual number of patients. A satisfactory method of treating these carriers has not yet been proposed, gargling and irrigation with disinfecting solutions, insufflation of similar powders, or of dried bactericidal serum, pyocyanase and chlorin vapor, have all been shown to be unreliable. Von Lingelsheim (13) states that the presence of the cocci in the upper air passages is more frequent early in the disease than later, which is important both for prophylaxis and for early bacteriological diagnosis. Out of 787 specimens of mucus from patients, 182, or 23 per cent., gave positive bacteriological results, but while the naso-pharyngeal mucus is the most frequent site of their development, they may spread also to the larynx, trachea and bronchi. Westenhoeffer (14) has found them in the kidney and Benneke (15) in the circulating blood. Mucus for early examination is best obtained by means of a long sound, armed with cotton, passed into the nose as far as the pharyngeal wall and swept over the pharynx while the tongue is held down. It should be planted on ascites agar with as little delay as possible. There are at least five other varieties of cocci found in the nose with which the meningococcus may be confused, and, hence bacteriological diagnosis is not adapted to general application, but is valuable where a well-equipped laboratory and a well-trained man are available. The identity of meningococci with gonococci and similar organisms must, according to Milhit and Tanon (16), be still left undecided. Von Lingelsheim sums up the epidemic characters as follows:

1. The disease spreads by irregular exten-

sions, many members of a family being ill at one time or only after long intervals.

2. There is no reason to believe that the contagion is conveyed by rooms, linen, clothing, utensils, which a patient has used, food or drinking water.

3. Insects, like fleas and bed bugs, probably do not carry it.

4. It is a disease most prevalent in cold weather.

5. There is apparently less danger from patients ill in bed than from the apparently healthy carrier, for the latter has more opportunity to disseminate the cocci.

Huber (17) considers pyocyanase of great value in the treatment, altho not specific, and recommends large doses of the chest serum —apparently he has not heard of Flexner. Crede's ointment is of no value in the epidemic disease but is helpful when the meningitis is due to staphylococci.

LITERATURE.

1. Kraus, Deut. med. Woch., No. 6, Feb. 11, 1909, p. 235.
2. Plesch, Deut. med. Woch., No. 6, Feb. 11, 1909, p. 239.
3. Dietlen, Munch. med. Woch., 1908, No. 34.
4. Dietlen, Munch, med. Woch., 1908, No. 40.
5. Herz, Med. Klin., 1908, No. 21.
6. Barie, Rev. d. Med., 1908, No. 8.
7. Moussous, Prov. med., 21st year, No. 40.
8. Bittorf, Ztlblat f. inn. Med., 1909, No. 2.
9. Rogge, Deut. militarartz. Zeit., 1908, Hft. 18.
10. Hubner and Kutscher, Deut. militarartz. Zeit., 1907, No. 15.
11. Vagades, ibid.
12. Bruns and Hohn, Klin. Jahrb., Bd. 18, 1908, Hft. 3.
13. Von Lingelsheim, Zeit. f. Hyg. u. Infekt., Bd. 59, 1908, p. 457.
14. Westenhoeffer, Berl. klin. Woch., 1907, No. 38.
15. Benneke, Munch. med. Woch., 1907, p. 2179.
16. Milhit and Tanon, La Presse med., 1908, No. 5, p. 34.
17. Huber, Munch. med. Woch., 1908, p. 1222.

EYE, EAR, NOSE AND THROAT

TRAUMATIC CATARACT IN CHILDREN.

(In the *Louisville Journal of Medicine and Surgery,* February, 1909.)

Adolph O. Pfingst reports five cases of traumatic cataract occurring in children treated by needling the lens. After a brief anatomical review of the lens and its capsule, the author points out the changes which take place in the lens whenever the aqueous humor infiltrates the lens substance.

While penetrating wounds are most frequently the cause of traumatic cataract, the lens often becomes opaque after blows upon the eye, without an apparent rent in the capsule. Cases are also on record where the opacity took place through the posterior capsule from the vitreous.

The author believes that in cataracts without an apparent capsule tear, which after several months show no sign of absorption, the absorption process should be started by incising the anterior capsule with a knife needle. The needling is repeated in four to six months, whenever the absorption process has apparently come to a stop, and provided the pupil is still obstructed. Finally the lens capsule is split to bring about a clear black pupil. In most cases in which the absorption was started by the penetrating wound two operations sufficed, and in the cases where the process had to be started by a needling three operations bcame necessary to bring about a clear pupil.

The most frequent complications met with in the treatment of these cases is iritis. Secondary glaucoma occurs in a certain number of cases and exceptionally cyclitis has been reported.

The usefulnes of an eye successfuly operated upon is rather limited, assisting the patient principally by increasing the range of